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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,174	10/15/2003	Jianfu Jeffrey Wang	559312000100	7584

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EXAMINER

CHEU, CHANGHWA J

ART UNIT	PAPER NUMBER
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1641

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/687,174

**Applicant(s)**

WANG ET AL.

**Examiner**

Jacob Cheu

**Art Unit**

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 24, “about 7, about 8, about 9, about 10, about 11, about 12, about 13, about 14” is vague and confusion. Since claim 24 depends 23, and claim 23 depends on claim 1 where claim 1 recites “at least 15 digital antibodies.” Thus claim 24 does not further limit claim 23. It is suggested that applicant deletes this limitation from claim language.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 9-11, 12, 14, 16-26 and 28 rejected under 35 U.S.C. 102(b) as being anticipated by Belov et al. (Cancer Res. 2001 61: 4483)

Belov et al. teach using antibodies array for immunophenotyping of different leukemia cells. Belov et al. teach immobilized at least 60 antibodies on the microarray, and subsequent testing the leukocytes from both leukemia patients and normal people on this antibodies array (See Method, and Figure 1, page 4484, right column, last paragraph). The antibodies used including CD complement activation molecules family, e.g. CD5, 5, 7, 44, 45, 71, 154, 13, 11....16. The bindings of antibodies-cells and the absence of such bindings reflect the phenotype pattern of the abnormal leukocytes in leukemia patients which is useful for clinical diagnosis (See Figure 1 and Table 1). It is an inherent characteristics that recognizable epitopes for antibodies usually consisting of at least 3, 4 or more consecutive amino acids.

5. Claims 1-28 are rejected under 35 U.S.C. 102 (e) as being unpatentable over Chait et al. (US 2003/0045694)

Chait et al. teach a method of detecting multiple analytes in samples, including controls, by a reporter signals system. Chait et al. teach that immobilizing 3200 antibodies on a micrarray and this inherently encompassing immobilizing less antibodies, such as 100, 200, 300, ....1000 antibodies as recited in claim 5 (See Section 1306). Chait et al. also teach pretreatment of the test samples, e.g. digestion or enzymatic cleavage (Section 0043, 0134 and 0137). Chait et al. teach washing the unbound samples from the assay (See Section 0205). Chait et al teach that the collected data of protein binding profiles, e.g. at least two samples, generated by the micrarray are a powerful tool in identifying and characterizing different biological samples (See Sections 0056, 0121, 0126).

With respect to claims 17, 19 and 21, Chait et al teach that the test samples can be peptides, proteins, cells, or virus (See Figures 1-3; claims 484, 500 and 509).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belov et al as in view of Chait et al.

The teachings of Belov et al. had been discussed as above, however Belov et al. teach immobilizing 60 antibodies on the microarray instead of 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 antibodies. Cardone et al. teach a microarray for efficient screening target molecules by immobilizing up to 3200 antibodies on the microarray (See Section 1306). This microarray device also encompasses loading less antibodies, such as 100, 200, 300, ....1000 antibodies depending on circumstances. Therefore, it would have been

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obvious to one of ordinary skill in the art at the time the invention was made to have provided Belov et al with more antibodies in a microarray as taught by Chait et al. for mass and efficient screening purposes.

***Conclusion***


9. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Cheu whose telephone number is 571-282-0814. The examiner can normally be reached on 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacob Cheu  
Examiner



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June 17, 2004



LONG V. LE  
SUPERVISORY PATENT EXAMINER  
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06/24/04